

WHAT IS CLAIMED IS:

1. A fixing apparatus comprising:

a heating member to be rotated to fix toner images;

5 a coil which generates a high-frequency magnetic field to perform induction heating in the heating member;

a high-frequency wave generating circuit which operates with power supplied from a power supply and
10 which outputs a high-frequency current to the coil for generating the high-frequency magnetic field;

a current-detecting unit which detects a current supplied from the power supply to the high-frequency wave generating circuit;

15 a control unit which drives the high-frequency wave generating circuit when an operation-on signal for initiating the induction heating acquires a first logic level and which stops the high-frequency wave generating circuit when the operation-on signal
20 acquires a second logic level; and

a protection circuit which controls supply of the current to the high-frequency wave generating circuit in accordance with the logic level of the operation-on signal and the magnitude of the current detected by the
25 current-detecting unit.

2. The fixing apparatus according to claim 1, wherein the control unit detects an output of the coil

from the current detected by the current-detecting unit, while the operation-on signal remains at the second logic level, and causes the high-frequency wave generating circuit to generate an output having a
5 predetermined value.

3. The fixing apparatus according to claim 3, wherein the protection circuit stops supply of the current from the power supply to the high-frequency wave generating circuit when the operation-on signal
10 acquires the second logic level.

4. The fixing apparatus according to claim 1, wherein the high-frequency wave generating circuit comprises a rectifying circuit which rectifies a voltage applied from the power supply, a capacitor
15 which is connected to the coil and constituting a resonant circuit jointly with the coil, and a switching element which excites the resonant circuit.

5. The fixing apparatus according to claim 1, wherein the current-detecting unit comprises a voltage-
20 lowering transformer having a primary winding connected to a current path of the high-frequency wave generating circuit, a rectifying circuit connected to a secondary winding of the voltage-lowering transformer and a
serial circuit connected to an output terminal of the
25 rectifying circuit and comprising a resistor and a smoothing capacitor, and outputs a direct-current voltage which corresponds to a current input from the

power supply to the high-frequency wave generating circuit.

6. The fixing apparatus according to claim 1,
wherein the protection circuit comprises a comparator
5 which compares an output voltage of the current-
detecting circuit with a predetermined reference
voltage, an inverter which inverts a logic level of the
operation-on signal, an AND circuit which receives the
output of the inverter and the output of the
10 comparator, and a switch which opens and closes a
current path between the power supply and the high-
frequency wave generating circuit in accordance with an
output of the AND circuit.

7. The fixing apparatus according to claim 1,
15 wherein the heating member is a hollow cylindrical
heating roller, and the coil is provided in the heating
roller.

8. A fixing apparatus comprising:
heating means to be rotated to fix toner images;
20 a coil which generates a high-frequency magnetic
field to perform induction heating in the heating
means;

high-frequency wave generating circuit which
operates with power supplied from a power supply and
25 which outputs a high-frequency current to the coil for
generating the high-frequency magnetic field;

current-detecting means for detecting a current

supplied from the power supply to the high-frequency wave generating means;

control unit means for driving the high-frequency wave generating means when an operation-on signal for
5 initiating the induction heating acquires a first logic level and which stops the high-frequency wave generating means when the operation-on signal acquires a second logic level; and

protection means for controlling supply of the
10 current to the high-frequency wave generating means in accordance with the logic level of the operation-on signal and the magnitude of the current detected by the current-detecting means.

9. The fixing apparatus according to claim 8,
15 wherein the control means detects an output of the coil from the current detected by the current-detecting means, while the operation-on signal remains at the second logic level, and causes the high-frequency wave generating means to generate an output having a
20 predetermined value.

10. The fixing apparatus according to claim 8,
wherein the protection means stops supply of the current from the power supply to the high-frequency wave generating means when the operation-on signal
25 acquires the second logic level.

11. The fixing apparatus according to claim 8,
wherein the high-frequency wave generating means

comprises a rectifying circuit which rectifies a
voltage applied from the power supply, a capacitor
which is connected to the coil and constituting a
resonant circuit jointly with the coil, and a switching
5 element which excites the resonant circuit.

12. The fixing apparatus according to claim 8,
wherein the current-detecting means comprises a
voltage-lowering transformer having a primary winding
connected to a current path of the high-frequency wave
10 generating circuit, a rectifying circuit connected to a
secondary winding of the voltage-lowering transformer
and a serial circuit connected to an output terminal of
the rectifying circuit and comprising a resistor and a
smoothing capacitor, and outputs a direct-current
15 voltage which corresponds to a current input from the
power supply to the high-frequency wave generating
means.

13. The fixing apparatus according to claim 8,
wherein the protection means comprises a comparator
20 which compares an output voltage of the current-
detecting means with a predetermined reference voltage,
an inverter which inverts a logic level of the
operation-on signal, an AND circuit which receives the
output of the inverter and the output of the
25 comparator, and a switch which opens and closes a
current path between the power supply and the high-
frequency wave generating means in accordance with an

output of the AND circuit.

14. The fixing apparatus according to claim 8,
wherein the heating means is a hollow cylindrical
heating roller, and the coil is provided in the heating
5 roller.